

REMARKS

Claims 1 to 32 are all the claims pending in the application.

Claims 1-32 have been rejected under 35 U.S.C. §103 as being unpatentable over Ohmori et al in view of Tanaka et al.

The Ohmori et al document that the Examiner cites is PCT/JP99/06876, which corresponds to EP 1,148,030.

The Tanaka et al document that the Examiner cites is PCT/JP00/05794, which corresponds to EP 1,231,186.

Applicants submit that Ohmori et al and Tanaka et al do not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 is directed to a method for producing a titanium-containing perovskite compound, wherein the method comprises a step of reacting titanium oxide produced through a vapor-phase method with at least one element selected from a group of alkaline earth metal compound and Pb compound in an alkaline solution.

The titanium-containing perovskite compound produced according to the method of the present invention exhibits ferroelectricity and has high heat resistance and excellent dispersibility. See page 13, lines 17-23, page 12, lines 18-21, and page 24, lines 2-6. As disclosed in the present specification, when a titanium-containing perovskite compound is synthesized by a method employing a titanium oxide sol, the perovskite exhibits paraelectricity. See page 23, lines 1-6 of the present specification. The heat resistance and dispersibility of such a perovskite is inferior to one obtained by the present invention.

Ohmori et al disclose a process for producing a perovskite titanium-containing composite oxide from a starting titanium oxide. Ohmori et al disclose that the preferred method for producing the starting titanium oxide is to produce a titanium oxide sol by subjecting a titanium salt to hydrolysis in an acid solution.

The Examiner relies on Tanaka et al for the disclosure of a method of producing titanium oxide by a vapor-phase method to produce particles with little aggregation and having highly excellent dispersibility. The Examiner argues that it would have been obvious to employ the Tanaka et al method to produce the starting titanium oxide that is employed in Ohmori et al.

Although Tanaka et al disclose that a vapor-phase method produces titanium oxide having less aggregation and highly excellent dispersibility, Tanaka et al do not disclose or suggest that such a titanium dioxide should be used in a method to produce a titanium-containing perovskite that exhibits ferroelectricity, and which has high heat resistance and excellent dispersibility.

The present specification contains evidence that the use of a vapor-phase method for obtaining the starting titanium oxide produces unexpected results in the production of a titanium-containing perovskite compound, as compared to the use of a titanium oxide produced by a sol technique such as in Ohmori et al.

Comparative Example 1 of the present specification discloses a sol method of forming titanium oxide, such as in Ohmori et al, but the barium titanate formed from the use of such a titanium oxide sol exhibited no ferroelectricity and had inferior heat resistance (18% shrinkage) and dispersibility ($D_{90} = 3.3 \mu\text{m}$). See page 43, lines 4-5, page 43, lines 9-10, and page 43, lines

18-22. See page 18, lines 16-20 for a discussion of D_{90} as a measure of dispersibility. Example 1 of the present specification, which is directly comparable to Comparative Example 1 of the present specification, shows that use of a vapor phase titanium oxide produces a barium titanate having ferroelectricity, better heat resistance (10% shrinkage) and better dispersibility ($D_{90} = 0.50 \mu\text{m}$). See page 34, lines 16-17, page 34, lines 29-30, and page 35, lines 15-16.

Thus, by comparing the results of Comparative Example 1 of the present specification, which is comparable to Example 1 of Ohmori et al in the formation of the titanium oxide by a sol technique, with the results of Example 1 of the present specification, it can be seen that the method of the present invention produces unexpected results.

In view of the above, applicants submit that Ohmori et al and Tanaka et al do not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

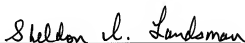
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